

DERWENT-ACC-NO: 1999-289380

DERWENT-WEEK: 200204

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TITLE: Polyurethane binder with low isocyanate monomer
content
for production of adhesives, coating materials,
resins,
laminates, etc.,

INVENTOR: BAUER, A; HENKE, G ; HUEBENER, A ; HUEBNER, A

PATENT-ASSIGNEE: HENKEL KGAA[HENK]

PRIORITY-DATA: 1997DE-1049834 (November 11, 1997)

PATENT-FAMILY:

PUB-NO	MAIN-IPC	PUB-DATE	LANGUAGE	
DE 19851182 A1		May 12, 1999	N/A	017
C08G 018/10				
JP 2001522908 W		November 20, 2001	N/A	042
C08G 018/10				
WO 9924486 A1		May 20, 1999	G	000
C08G 018/10				
EP 1030869 A1		August 30, 2000	G	000
C08G 018/10				
BR 9814131 A		October 3, 2000	N/A	000
C08G 018/10				
CZ 200001735 A3		October 11, 2000	N/A	000
C08G 018/10				
CN 1278835 A		January 3, 2001	N/A	000
C08G 018/10				
HU 200100117 A2		June 28, 2001	N/A	000
C08G 018/10				
KR 2001031995 A		April 16, 2001	N/A	000
C08G 018/10				
MX 2000004555 A1		February 1, 2001	N/A	000
C08G 018/10				

DESIGNATED-STATES: BR CA CN CZ HU JP KR MX PL RU TR US AT BE CH CY DE
DK ES FI
FR GB GR IE IT LU MC NL PT SE AT BE CH CY DE DK ES FI FR GB GR IE IT LI
LU MC
NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
DE 19851182A1	N/A	1998DE-1051182
November 6, 1998		
JP2001522908W	N/A	1998WO-EP07094

November 6, 1998 JP2001522908W	N/A	2000JP-0520492	
November 6, 1998 JP2001522908W	Based on	WO 9924486	N/A
WO 9924486A1	N/A	1998WO-EP07094	
November 6, 1998 EP 1030869A1	N/A	1998EP-0963418	
November 6, 1998 EP 1030869A1	N/A	1998WO-EP07094	
November 6, 1998 EP 1030869A1	Based on	WO 9924486	N/A
BR 9814131A	N/A	1998BR-0014131	
November 6, 1998 BR 9814131A	N/A	1998WO-EP07094	
November 6, 1998 BR 9814131A	Based on	WO 9924486	N/A
CZ 200001735A3	N/A	1998WO-EP07094	
November 6, 1998 CZ 200001735A3	N/A	2000CZ-0001735	
November 6, 1998 CZ 200001735A3	Based on	WO 9924486	N/A
CN 1278835A	N/A	1998CN-0811033	
November 6, 1998 HU 200100117A2	N/A	1998WO-EP07094	
November 6, 1998 HU 200100117A2	N/A	2001HU-0000117	
November 6, 1998 HU 200100117A2	Based on	WO 9924486	N/A
KR2001031995A	N/A	2000KR-0705105	May
10, 2000 MX2000004555A1	N/A	2000MX-0004555	May
11, 2000			

INT-CL (IPC): B32B027/18, C08G018/10 , C08G018/72 , C08G018/75 ,
C08G018/76 , C08J005/00 , C08L075/04 , C09D175/04 , C09J175/04

ABSTRACTED-PUB-NO: DE 19851182A

BASIC-ABSTRACT:

NOVELTY - A polyurethane binder with a low volatile monomer content, containing a prepolymer with at least two isocyanate groups of different reactivity and a polyfunctional isocyanate with a lower mol. wt. than the prepolymer, in which the isocyanate groups are more reactive than the less reactive isocyanate groups in the prepolymer.

DETAILED DESCRIPTION - A polyurethane binder with a low content of

volatile
isocyanate (NCO) monomer, comprising components (A) and (B), in which
the
isocyanate component (B) consists of:

- (a) polyurethane prepolymer(s) with at least two differently- bonded
NCO
groups, one of which is less reactive than the other; and
- (b) an at least difunctional isocyanate with a mol. wt. lower than that
of the
prepolymers in (a), in which the NCO groups are more reactive towards
NCO-reactive compounds than the less reactive of the two types of NCO
groups in
(a).

INDEPENDENT CLAIMS are included for:

- (i) a process for the production of low-viscosity, NCO-containing
polyurethane
binders, comprising (c) production of a polyurethane prepolymer (C)
from an at
least difunctional isocyanate and polyol component(s) and (d) reacting
another
at least difunctional isocyanate (or another such isocyanate and
another polyol
component) in presence of the prepolymer, so that most of the NCO
groups at the
end of stage (c) are less reactive towards hydroxyl (OH) groups than
the NCO
groups in the isocyanate added in stage (d), and the OH:NCO ratio in
stage (d)
is 0.2-0.6;
- (ii) a process for the production of low-viscosity NCO-containing
polyurethane
binders with a low content of NCO monomer by mixing components (C), (D)
and
(E), in which (C) is obtained as above, (D) is another NCO- containing
prepolymer obtained by reacting polyol with another polyfunctional
isocyanate
with NCO groups more reactive than those in (C), and (E) is a
polyfunctional
isocyanate with a mol. wt. lower than (C) and (D), in which the NCO
groups are
more reactive than those in (C), and in which the amount of (E) is such
that at
least 5 (preferably at least 10) wt% (E) is in the binder after mixing
and
after all reactions between the components; and
- (iii) an adhesive composition containing (F) an NCO-containing
polyurethane
binder as above and (G) compound(s) with a mol. wt. of up to 2500
containing at
least two NCO-reactive functional groups.

USE - For the production of adhesives (especially 1- or 2-component adhesives), coating materials (especially varnish and emulsion paint), casting resins and molded products, and for coating and especially gluing objects, especially for bonding film and for production of laminates (claimed).

ADVANTAGE - A low-viscosity polyurethane binder with a very low content of volatile isocyanate monomer (less than 1 wt%, or less than 0.1 wt% in the case of TDI), resulting in a low working temperature and minimal migration of monomer. Laminates made with this binder show little or no delamination, even at elevated temperature.

TITLE-TERMS: POLYURETHANE BIND LOW ISOCYANATE MONOMER CONTENT PRODUCE
ADHESIVE

COATING MATERIAL RESIN LAMINATE

DERWENT-CLASS: A25 A28 A81 A82 G02 G03 P73

CPI-CODES: A05-G01E; A10-D; A12-A05F; G03-B02E4;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

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018 ; G1934 G1854 G1843 D01 F73 D11 D10 D19 D18 D31 D76 D50 D93  
; R01624 G1854 G1843 D01 D11 D10 D14 D13 D31 D50 D76 D92 F73 ;
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R17132

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G1854 G1843 D01 D11 D10 D14 D13 D32 D50 D76 D93 F73 ; R00137 G1025
G0997 D01 D11 D10 D50 D83 F28 F26 ; R00370 G1558 D01 D11 D10 D23
D22 D31 D42 D50 D73 D83 F47 ; R01392 G1912 G1854 G1843 D01 D11 D10
D19 D18 D31 D50 D76 D89 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10
D19 D18 D32 D50 D76 D93 F73 ; G1912*R G1854 G1843 D01 D11 D10 D19
D18 D31 D50 D76 D89 F73 ; G1887*R G1854 G1843 D01 D11 D10 D19 D18
D32 D50 D76 D93 F73 ; G1843*R D01 F73 G1945*R G1843 ; H0033 H0011
; H0259 ; H0260 ; P0839*R F41 D01 D63 ; P0964*R F34 D01 ; P1592*R
F77 D01 ; P0055 ; P0931*R P1592 P0839 H0260 H0011 H0044 F41 F77
D01 D63 ; P1058*R P1592 P0964 H0260 F34 F77 H0044 H0011 D01 ; P1649
P1592 F77 H0011 D01 ; L9999 L2528 L2506 ; L9999 L2824 ; K9723 ;
P1638 P1592 F77 D01 ; L9999 L2620 L2506 ; S9999 S1025 S1014 ; S9999
S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ;
S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434
S1434 ; S9999 S1434
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Polymer Index [1.2]

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018 ; ND03 ; ND04 ; Q9999 Q6791 ; B9999 B4535 ; B9999 B3725 B3690
; B9999 B3554*R ; Q9999 Q6644*R ; K9483*R ; K9676*R ; Q9999 Q7158*R
Q7114 ; Q9999 Q7169 Q7158 Q7114 ; N9999 N5743 ; N9999 N5743 ; N9999
N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ;
N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743
; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999
N5743 ; N9999 N5743 ; N9999 N5743 ; Q9999 Q7114*R ; Q9999 Q7114*R
; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R
; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R
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; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R
; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7818*R
; K9461 ; B9999 B5301 B5298 B5276 ; B9999 B3178

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1999-085731

DERWENT-ACC-NO: 1998-378380

DERWENT-WEEK: 200161

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TITLE: Low=monomer polyurethane prepolymer with free
isocyanate group(s) - obtained by reacting poly:hydric
alcohol with asymmetric di:isocyanate of low reactivity, then
with more reactive symmetrical di:isocyanate

INVENTOR: BOLTE, G; HENKE, G ; KRUDENSCHIEDT, M ; OMORUYI, A ;
KRUEDENSCHIEDT,
M

PATENT-ASSIGNEE: HENKEL KGAA[HENK]

PRIORITY-DATA: 1997DE-1000014 (January 2, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	
PAGES MAIN-IPC			
DE 19700014 A1	July 9, 1998	G	005
C08G 018/10			
ES 2158616 T3	September 1, 2001	N/A	000
C08G 018/10			
WO 9829466 A1	July 9, 1998	G	000
C08G 018/10			
ZA 9711666 A	September 30, 1998	N/A	015
C08G 000/00			
AU 9858578 A	July 31, 1998	N/A	000
C08G 018/10			
NO 9903273 A	July 1, 1999	N/A	000
C08G 018/10			
EP 951493 A1	October 27, 1999	G	000
C08G 018/10			
SK 9900892 A3	December 10, 1999	N/A	000
C08G 018/10			
CZ 9902396 A3	March 15, 2000	N/A	000
C08G 018/10			
CN 1242782 A	January 26, 2000	N/A	000
C08G 018/10			
BR 9714451 A	March 21, 2000	N/A	000
C08G 018/10			
NZ 336543 A	May 26, 2000	N/A	000
C09J 175/04			
HU 200000484 A2	July 28, 2000	N/A	000
C08G 018/10			
MX 9906031 A1	November 1, 1999	N/A	000
C08G 018/10			
KR 2000062385 A	October 25, 2000	N/A	000
C08G 018/10			

EP 951493 B1	June 27, 2001	G	000
C08G 018/10			
JP 2001508097 W	June 19, 2001	N/A	017
C08G 018/10			
DE 59703925 G	August 2, 2001	N/A	000
C08G 018/10			

DESIGNATED-STATES: AU BR CA CN CZ HU JP KR MX NO NZ PL RU SG SI SK TR
 US VN AT
 BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE AT BE CH DE DK ES FI FR
 GB GR
 IE IT LI LU MC NL PT SE SI AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
 NL PT
 SE SI

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	
APPL-DATE			
DE 19700014A1	N/A	1997DE-1000014	
January 2, 1997			
ES 2158616T3	N/A	1997EP-0954425	
December 18, 1997			
ES 2158616T3	Based on	EP 951493	N/A
WO 9829466A1	N/A	1997WO-EP07131	
December 18, 1997			
ZA 9711666A	N/A	1997ZA-0011666	
December 29, 1997			
AU 9858578A	N/A	1998AU-0058578	
December 18, 1997			
AU 9858578A	Based on	WO 9829466	N/A
NO 9903273A	N/A	1997WO-EP07131	
December 18, 1997			
NO 9903273A	N/A	1999NO-0003273	
July 1, 1999			
EP 951493A1	N/A	1997EP-0954425	
December 18, 1997			
EP 951493A1	N/A	1997WO-EP07131	
December 18, 1997			
EP 951493A1	Based on	WO 9829466	N/A
SK 9900892A3	N/A	1997WO-EP07131	
December 18, 1997			
SK 9900892A3	N/A	1999SK-0000892	
December 18, 1997			
CZ 9902396A3	N/A	1997WO-EP07131	
December 18, 1997			
CZ 9902396A3	N/A	1999CZ-0002396	
December 18, 1997			
CZ 9902396A3	Based on	WO 9829466	N/A
CN 1242782A	N/A	1997CN-0181179	
December 18, 1997			
BR 9714451A	N/A	1997BR-0014451	
December 18, 1997			

BR 9714451A	N/A	1997WO-EP07131	
December 18, 1997			
BR 9714451A	Based on	WO 9829466	N/A
NZ 336543A	N/A	1997NZ-0336543	
December 18, 1997			
NZ 336543A	N/A	1997WO-EP07131	
December 18, 1997			
NZ 336543A	Based on	WO 9829466	N/A
HU 200000484A2	N/A	1997WO-EP07131	
December 18, 1997			
HU 200000484A2	N/A	2000HU-0000484	
December 18, 1997			
HU 200000484A2	Based on	WO 9829466	N/A
MX 9906031A1	N/A	1999MX-0006031	
June 25, 1999			
KR2000062385A	N/A	1997WO-EP07131	
December 18, 1997			
KR2000062385A	N/A	1999KR-0705952	
June 29, 1999			
KR2000062385A	Based on	WO 9829466	N/A
EP 951493B1	N/A	1997EP-0954425	
December 18, 1997			
EP 951493B1	N/A	1997WO-EP07131	
December 18, 1997			
EP 951493B1	Based on	WO 9829466	N/A
JP2001508097W	N/A	1997WO-EP07131	
December 18, 1997			
JP2001508097W	N/A	1998JP-0529583	
December 18, 1997			
JP2001508097W	Based on	WO 9829466	N/A
DE 59703925G	N/A	1997DE-0503925	
December 18, 1997			
DE 59703925G	N/A	1997EP-0954425	
December 18, 1997			
DE 59703925G	N/A	1997WO-EP07131	
December 18, 1997			
DE 59703925G	Based on	EP 951493	N/A
DE 59703925G	Based on	WO 9829466	N/A

B1 , JP 2001508097 W
 INT-CL (IPC): B32B007/12, C08G000/00 , C08G018/10 , C08G018/32 ,
 C08G018/42 , C08G018/48 , C08G018/76 , C09D005/00 , C09D175/04 ,
 C09J175/00 , C09J175/04

ABSTRACTED-PUB-NO: DE 19700014A

BASIC-ABSTRACT:

Low-monomer polyurethane (PU) prepolymers (I) with free NCO groups, obtained from polyhydric alcohols (II) and at least two di-isocyanates of different reactivity, where the ratio of NCO groups from the less reactive di-isocyanate (IIIA) to NCO groups from the more reactive di-isocyanate (IIIB) is not more than 6:1.

Also claimed is a process for producing (I).

USE - Used with conventional hardeners and/or moisturisers, optionally with solvents, accelerators and additives, as adhesives for bonding plastics, metals, paper and especially films. Preferably used at room temperature to 120 deg. C (claimed)

ADVANTAGE - PU prepolymers with a monomer content of at most 1 wt.-% and a lower content of non-volatile di-isocyanate than prior-art prepolymers, showing longer working times, shorter cure times at room temperature/normal humidity (7 days instead of 14) and higher initial bond strengths.

ABSTRACTED-PUB-NO: EP 951493B

EQUIVALENT-ABSTRACTS:

Low-monomer polyurethane (PU) prepolymers (I) with free NCO groups, obtained from polyhydric alcohols (II) and at least two di-isocyanates of different reactivity, where the ratio of NCO groups from the less reactive di-isocyanate (IIIA) to NCO groups from the more reactive di-isocyanate (IIIB) is not more than 6:1.

Also claimed is a process for producing (I).

USE - Used with conventional hardeners and/or moisturisers, optionally with solvents, accelerators and additives, as adhesives for bonding plastics, metals, paper and especially films. Preferably used at room temperature to 120 deg. C (claimed)

ADVANTAGE - PU prepolymers with a monomer content of at most 1 wt.-% and a lower content of non-volatile di-isocyanate than prior-art prepolymers, showing longer working times, shorter cure times at room temperature/normal

humidity (7
days instead of 14) and higher initial bond strengths.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: POLYURETHANE PREPOLYMER FREE ISOCYANATE GROUP OBTAIN REACT
POLY

HYDRIC ALCOHOL ASYMMETRIC DI ISOCYANATE LOW REACT MORE
REACT
SYMMETRICAL DI ISOCYANATE

DERWENT-CLASS: A25 A81 G03 P73

CPI-CODES: A05-G01E; A08-D01; A10-D; A12-A05F; G02-A02H;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; R01392 G1912 G1854 G1843
D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; R00735 G1887 G1854 G1843
D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; P1069 P1058 P1592 P0964
H0260 F34 F77 H0033 H0044 H0011 P0055 D01 D10 ; L9999 L2528 L2506
; P1638 P1592 F77 D01

Polymer Index [1.2]

018 ; N9999 N5709

Polymer Index [1.3]

018 ; ND03 ; Q9999 Q6644*R ; K9563 K9483 ; K9574 K9483 ; K9552
K9483

; K9676*R ; N9999 N6177*R ; B9999 B4988*R B4977 B4740

Polymer Index [1.4]

018 ; A999 A475 ; A999 A146 ; A999 A793 ; A999 A157*R

Polymer Index [2.1]

018 ; D01 D11 D10 D19 D18 D50 F73 ; R00735 G1887 G1854 G1843 D01
D11 D10 D19 D18 D32 D50 D76 D93 F73 ; R01392 G1912 G1854 G1843 D01
D11 D10 D19 D18 D31 D50 D76 D89 F73 ; D01 D11 D10 D50 F28 F26 F29
D82 D83 D84 D85 D86 D87 D88 F34 F41*R ; L9999 L2528 L2506 ; P1638
P1592 F77 D01

Polymer Index [2.2]

018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; D01 D11 D10 D19 D18 D50
F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93
F73 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89
F73 ; P1069 P1058 P1592 P0964 H0260 F34 F77 H0033 H0044 H0011 P0055
D01 D10 ; L9999 L2528 L2506

Polymer Index [2.3]

018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; D01 D11 D10 D50 F28 F26
F29 D82 D83 D84 D85 D86 D87 D88 F34 F41*R ; D01 D11 D10 D19 D18
D50 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76
D93 F73 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76
D89 F73 ; P1638 P1592 F77 D01 ; P1069 P1058 P1592 P0964 H0260 F34
F77 H0033 H0044 H0011 P0055 D01 D10 ; L9999 L2528 L2506

Polymer Index [2.4]

018 ; ND03 ; Q9999 Q6644*R ; K9563 K9483 ; K9574 K9483 ; K9552
K9483

; K9676*R ; N9999 N6177*R ; B9999 B4988*R B4977 B4740

Polymer Index [2.5]

018 ; C999 C306 ; C999 C000*R

Polymer Index [3.1]

018 ; P8015 P0975 P0964 D01 D10 D11 D50 D83 F34

Polymer Index [3.2]
018 ; B9999 B4900 B4740
Polymer Index [4.1]
018 ; P0964*R F34 D01
Polymer Index [4.2]
018 ; B9999 B5094 B4977 B4740

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1998-114964

Non-CPI Secondary Accession Numbers: N1998-295803